TIMELINESS OF EARNINGS REPORTS:A SIGNALING APPROACH

BY

JANG YOUN CHO

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To my parents and parents-in-law

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JANG YOUN CHO

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In this dissertation, five determinants of disclosure levels of financial information are identified. The timing of a signal and the characteristics of the signal generating function are two determinants that are typically under the control of management. These two determinants are proxied by the timing delay of information disclosure which is attributable to management and to the audit. Given the SEC disclosure requirements, managements' incentives to delay bad news are analyzed, and it is demonstrated that these incentives are negatively correlated with firm size.

Three major hypotheses are tested using a sample of 183 firms. The first issue concerns an examination of the determinants of reporting delay, where reporting delay is defined as unintentional audit delay and intentional management delay. Firm size and type of audit opinion

(qualified or clean) are found to be related to reporting delay, with firm size determined to be a significant determinant of management delay.

The second hypothesis tests for the magnitude of the securities market reaction to earnings announcements and other variables which relate to the reporting delay. It is shown that the market reacts negatively to intentional management delays of earnings announcement.

The final hypothesis examines the extent to which managers utilize their advance knowledge of the level of a firm's earnings in earning abnormal returns from insider trading. The results do not support this hypothesis.

CHAPTER I
INTRODUCTION

Publicly traded firms release information to investors almost continuously, even in the absence of regulatory requirements to do so. Bhattacharaya (1979) and Miller and Rock (1985), among others, have used signaling theory to explain why managers choose to suppress or reveal certain private information. Dividend policies and capital structure decisions are some examples.

In the financial accounting area, several researchers have evaluated the effects of voluntary disclosures such as managers' earnings forecasts. The studies by Penman (1980) and Ajinkya and Gift (1984) tested whether management forecasts fully reveal private information, both good news and bad news. Penman concluded that firms with good news appear more willing to reveal their forecasts. By contrast, the result of Ajinkya and Gift showed that forecasts occur in cases in which both good news and bad news adjustments are called for, under certain circumstances. Recently, Trueman (1986) has shown analytically that given costless disclosure, a manager has an incentive to voluntarily release bad news as well as good news.

With respect to mandatory disclosures, a limited number of studies have tested the relationship between reporting

time lag and good/bad news (Whittred, 1980a; Givoly and Palmon, 1982; Chambers and Penman, 1984). These studies suggest that delay is inversely related to the favorableness of the information, which in turn implies that management exercises some discretion over the timeliness of reporting. In the auditing area, only the study by Whittred (1980b) has tested the relationship between audit opinions and the time lag of annual report announcements. His results show that firms receiving clean opinions release their earnings announcements earlier than firms receiving qualified opinions.

The Financial Accounting Standards Board (FASB), in its Statement of Financial Accounting Concepts Number 2, views timeliness as one key aspect of information relevance, one of the two primary decision-specific qualities. The Securities and Exchange Commission (SEC) is also concerned with timeliness, as demonstrated by its requirement that all public firms file 10-K reports within 90 days of fiscal year-end. In spite of these policy-makers' concern with the timing issue, it is surprising that limited research has been conducted in this area.

This study is primarily concerned with the timing of disclosure by companies subject to SEC mandates. First, using the rudiments of decision and signaling theory, I build a theoretical framework to explain managerial actions in disclosing private information in both the voluntary and

mandatory disclosure cases. Based upon this framework, three major issues are explored in this study. The timing of the annual report is examined for firms that experienced a change in audit opinion (a surrogate for good/bad news). Second, information content is tested in relation to the timing of the annual report. Finally, the hypothesis that the manager might time the earnings release to benefit through insider trading opportunities is examined.

The major differences of this dissertation as compared to previous studies are as follows. This study models the timing of disclosure as a determinant of the information value of an earnings report. In addition, previous studies tested good/bad news in terms of profitability by using naive earnings expectation models; this study uses audit opinion changes for good and bad news. In addition, the good/bad news effects from earnings announcements is also controlled for by derivations from analysts' forecasts using IBES. One additional refinement in this study is the use of three separate criteria for the measurement of reporting delay: (1) audit delay (FYE - last day of audit field work); (2) management delay (last day of audit field work - WSJ date); and (3) total delay (the sum of (1) + (2)). This disaggregation of the delay variable assists in examining the sources of the announcement delay--i.e., whether time lags are caused by an internal factor (e.g., management delay) or by an external factor (e.g., audit delay). This

study also tests the information content of qualified audit opinions and audit disclaimers explicitly in relation to announcement delays, which has not previously been examined. Finally, insider trading opportunities are also explored as one possible explanation of managerial motivation to accelerate or delay the timing of earnings announcements.

This dissertation is organized as follows. The literature is briefly reviewed in Chapter II. The theoretical framework is constructed in Chapter III. Chapter IV presents hypotheses, and research design and results are presented in Chapters V and VI. Conclusions and limitations are discussed in the last chapter.

CHAPTER II
BACKGROUND

A number of researchers have studied the relationship between stock prices and earnings announcements.[1] There is considerable evidence (e.g., Beaver, 1968; May, 1971; Morse, 1981) which documents greater variability of stock returns at the time of announcements of firms' annual and interim earnings. However, the timeliness of the issuance of the annual report received little attention in the literature. Beaver (1968) was one of the first researchers to suggest the possibility that a relationship exists between reporting delay and the favorableness of the reported information. He wrote: "A possible avenue for future research would be to study the information content of the time lag itself (e.g., is 'bad' news reported less rapidly than 'good' news?)" (1968, p. 72).

The relationship between the time lag and information content was tested by Dyer and McHugh (1975) using 118 industrial companies on the Sydney Stock Exchange. They found that in Australia, the time lag between the fiscal year end (FYE) and earnings announcement date is longer for smaller companies. Their results did not support the

[1]For a good elaboration of this issue, see Abdel-khalik and Ajinkya (1979) and Lev and Ohlson (1982).

hypothesized relationship between a firm's reporting delay and its profitability level. These results were corroborated by Davies and Whittred (1980) for the relationship between reporting delay and accounting rate of return.

Other studies have examined the association between reporting delays and unanticipated changes in earnings. Givoly and Palmon (1982) found that bad news firms tend to be delayed, but that it was not a major determinant of the reporting lag. Kross and Schroeder (1984) showed that early quarterly announcements contained good news, where they defined good and bad news using the quarterly earnings forecasting model proposed by Watts (1975). Similarly, Patell and Wolfson (1982) found that good news tends to be released during trading, while bad news tends to be released after the market closes.

The mixed results of the above studies on the relationship between the length of reporting delay and good/bad news may be due to the different definitions of good and bad news (e.g., profitability level vs. unexpected earnings). In fact, Givoly and Palmon (1982) criticized Dyer and McHugh's work (1975) because they measured the level of profitability rather than the direction and change in profitability, to connote the news content of the financial report. Givoly and Palmon stated that "the results of Dyer and McHugh's studies can not be considered

as a valid refutation of the commonly held view that bad news is disclosed later than good news" (1982, p.490). In their study, Givoly and Palmon used dummy variables (0,1) to indicate the presence of good or bad news, based on deviation of earnings from forecasts using the martingale model with drift. Mixed results may also be attributed in part to the differences in the sizes of firms studied, although this assertion has not yet been tested explicitly. Chambers and Penman (1984) noted that their negative results could have been confounded by a firm size effect, and so they conducted a preliminary analysis in order to determine the effects of firm size, by replicating their analysis on subsamples of (1) firms smaller than the median sampled firms and (2) firms larger than the median. "Good news" and "bad news" reports were classified on the basis of the observed return for the firm over the two-day report period minus the mean return calculated over the preceding 100 two-day trading periods. Chambers and Penman (1984) reported no significant differences between the measures of return variability associated with good news and bad news reports, holding size constant, but they observed an inverse relationship between these measures and size, holding the nature of the news constant. Such an analysis is a very rough control for firm size, however, since a size effect could still be operating within each of the subsamples.

The relationship between security market reaction and the reporting delay was also examined. Based on a sample of 109 annual earnings announcements over the period 1960-1974, Givoly and Palmon (1982) presented evidence that price reaction associated with early disclosures exceeds the reactions to later disclosures. In their analysis, the reporting lag was defined as the difference between the expected and the actual announcement dates. However, when the delay was measured by the difference between the fiscal year end and announcement dates, they found no significant relationship between reporting lags and the variability of stock price reaction in the announcement week. The study by Chambers and Penman (1984) was based on 691 annual reports from 1970-76. They also found that the relationship between market activity and reporting lag depend upon the definition of reporting lag. Market reaction was greatest for the earliest reports, when reporting lag was defined as the unexpected announcement lag. Chambers and Penman's results were also supported by Kross and Schroeder (1984), who examined quarterly earnings announcements. In all of these studies, it is not clear whether the market reacts to the reporting delay itself or to some event that is contemporaneously associated with the delay such as an audit opinion qualification or some other type of bad news.

Qualified audit opinions were examined separately. A number of studies have reported the association between

qualified audit opinions and stock prices. Dodd et al. (1984) investigated whether announcements of "subject to" audit opinions affect stock prices. Their results indicate that many firms experience negative abnormal return prior to the release of qualified opinions, and that the magnitude of the prior abnormal return differs across types of qualifications. However, they could find little evidence of price movement when qualifications are publicly disclosed. Their results are generally consistent with those reported by Elliott (1982), but differ from those reported by Chow and Rice (1982). The different conclusions could be due to the use of different announcement dates for the qualification and the test periods. Recently, Dopuch et al. (1986) tested the market reaction of media disclosures of "subject to" qualified opinions. Their study documents that an average negative abnormal stock return of -4.7% is associated with media disclosures of "subject to" qualified audit opinions. However, they were unable to draw any inferences because they can not identify the selection process that produced the sample of media disclosures.

The final line of research examined here is concerned with insider trading. Recently, a few studies have pursued possible relationships between the timing of earnings announcements and insider trading opportunities. It is generally presumed that corporate insiders have access to information which is superior to that available to

outsiders. Empirical works on insider trading by Jaffe (1974) and by Finnerty (1976) have shown that, on average, insiders earn higher returns on their holdings than do outsiders. Penman (1982) examined the security trading of corporate insiders around the time that they disclosed earnings forecasts. His evidence indicates that insiders time the trades on their firms' stock relative to their disclosure date of forecasted annual earnings. Furthermore, insiders were found to earn abnormal returns on their joint trading and information dissemination activities. Similarly, Penman (1984) provides evidence that insiders could earn abnormal returns by selling a firm short when its quarterly or annual report is unexpectedly late and maintaining the position until after the firm's actual earnings announcement date. Average abnormal returns were found to be in the order of 1.0% over 20 days, but such returns were larger for small firms in the sample and were positively related to the length of the reporting delay. Penman also documented that long positions taken in stocks reporting early with good news would have generated average abnormal returns of approximately 1.0% over a 20-day holding period. This implies that stock prices do not fully reflect bad news before they are announced. Another study by Elliott, Morse and Richardson (1984) explicitly examined the distributional characteristics of insider trading and evaluated whether these characteristics are altered in the

period surrounding certain public announcements such as announcements of earnings, dividends, bond ratings, mergers, and bankruptcies. The results indicated that insider trading in the period surrounding specific public information events is not different from insider trading at other times, which implies that the vast majority of insider trading appears to be unrelated to imminent information releases.

CHAPTER III
THEORETICAL FRAMEWORK

The value of financial information is defined as the expected increase in a decision maker's utility by having an information system as compared to not having an information system (Itami, 1977). In other words, the demand (supply) value of an information system is the maximum amount which the decision maker would pay (accept) for the system.

More formally, the value of an information system H is given by:[1]

$$V(H) = \Sigma\, f(s).p(y|s,H).(\text{Max}\ \Sigma\, U(s,a).f(s|y,H)) - \text{Max}\ \Sigma\, U(s,a).f(s) \quad \ldots\ldots\ldots\ (1)$$

where s = state
y = signals from system H
p(y|s,H) = signal generating probability function
a = action
f(s|y,H) = decision maker's posterior probability distribution function.
U(s,a) = decision maker's utility function

(see Appendix A for a detailed discussion and derivation of this equation.)

[1]Basic assumptions of decision theory are applied here. They are completeness, transitivity, continuity and monotonicity. For more discussion, see Varian (1978) and Demski (1972).

From equation (1), the determinants of information value may be classified as follows.

(1) The decision maker's (DM's) initial uncertainty (i.e., prior probability distribution): f(s)

(2) The decision maker's action set: (A)

(3) The characteristics of the signal generating probability distribution: p(y|s,H)

(4) The characteristics of the DM's utility function:U(s,a).

(See Appendix B for a theoretical link among determinants.)

The original identification of these factors is attributable to Marschak and Radner (1972) and Demski (1972). Later, Itami (1977) also included as a determinant the timing of a signal received by the decision maker. Information timing could be a parameter of the information system if the DM's perceived relationship between signals and states is dependent on signal timing.

The demand value of a financial accounting information system stems from the above five factors. What, then, are the determinants of the supply value of an information system? If the disclosure of financial information is discretionary, then the manager exercises the choice of whether or not to disclose the information. However, not all of the above determinants are under the manager's discretion. The timing of a signal (T) and the characteristics of the signal-generating probability

distribution (P(y|s,H)) are the typical determinants of information value that are under the control of the manager. These determinants can be loosely stated as follows:

What type of information should be disclosed?

How will the information be disclosed?

How much information will be disclosed?

When will the information be disclosed?

The first three aspects are related to P(y|s,H), while the last one concerns timing (T). More specifically, the first two aspects of information concern quality (QL) and the third concerns quantity (Qn). These two factors (QL,Qn) which are the amount of reduction of uncertainty that the signal provides, are related to Blackwell's theorem which identifies the condition between two signal generating probabilitites for one system (H1) to have no less value for every U(.) and f(.) than another system (H2). Hence, the determinants of the value of voluntarily disclosed information can be expressed as D=f(QL,Qn,T) where D=disclosure level in terms of QL,Qn,T.

When the manager obtains private information on the firm's future production, investment, and/or financing decisions by working for the firm, he can exercise discretion as to whether to suppress or disclose the information to maximize his personal wealth. If let V' as a firm's value with signaling (disclosure) where V'i=f(D(QL,Qn,T)) and if we let Vi be the same firm's value

without signaling, then the manager's decision will depend upon whether the additional benefit (V'i-Vi) is greater than the signaling cost Ci(P1,P2). Here, signaling costs are composed of direct information production cost (P1) and indirect information cost (P2). Examples of indirect information costs include proprietary costs and political costs. The optimal level of disclosure is at the point where the marginal signaling benefit (MSB) equals the marginal signaling cost (MSC). This relationship is depicted in Figure 3.1.

The total signaling benefit increases monotonically as the disclosure level increases, where D is positively related to QL, Qn and T. In other words, D is assumed to increase if QL is improved, Qn is increased, and/or T becomes more timely. The marginal benefit is expected to decrease as the disclosure level increases, while the marginal signaling cost increases especially due to the proprietary costs. The optimal level of disclosure (D*) is determined where MSB equals MSC. At this point, the manager has no incentive to disclose any additional information further. The manager, as a rational decision maker, is expected to seek to profit from trading in the shares of company on the basis of his superior information (Hakansson, 1981). If we add the insider trading strategy to improve the manager's wealth, then he has an incentive to disclose the information as long as the signaling benefit

plus the net insider trading benefit equals or exceeds the signaling cost. If insider trading is allowed, then Figure 3.1 will change as indicated in Figure 3.2.

Figure 3.2 shows the shift of the optimal disclosure level from D* to D**. In this figure, the MSB and MSC of figure 3.1 are different, in that MSB' and MSC' are the marginal signaling benefit and marginal signaling cost incurred by the manager in the presence of insider trading opportunities. Expected penalties reduce the net insider trading benefit as the disclosure level increases. In deriving the optimal disclosure level under these new changed conditions, we postulate that the manager is a rational, utility maximizing economic agent who will not get negative returns by engaging insider trading activity. This means that the new composite marginal benefit curve MSB'+MNIB will touch the old MSB' curve, and will become identical to the MSB' curve beyond D' the point where a rational economic agent would not engage in any insider trading. Beyond D', insider trading makes the manager worse off, resulting in a negative return.

Thus, for the determination of the optimal disclosure level, two distinct situations are possible:

Case (1): If we are to the right of D*, then insider trading is profitable, hence it occurs, and the optimal disclosure will be determined by the intersection of the MSB'+ MNIB curve and the MSC' curve.

Case (2): If we are to the left of D*, then insider trading is unprofitable, hence it does not occur given our assumption of rationality, and so the optimal disclosure level will be determined by the intersection of the MSC' curve and the old MSB' curve.

Turning now to the case of mandatory disclosure, a comparison of the decisions afforded in mandatory as opposed to voluntary disclosure environments can be made as follows:

			Qn	
	disclose	.....	QL	discretionary
Voluntary			T	
	suppress			
			Qn	
Mandatory	disclose	.....	QL	somewhat
			T	discretionary

In the case of mandatory disclosure, quantity and quality are set by the regulatory body, and are evaluated by the auditor in the form of an audit opinion. Timing is also assumed to be fixed. Some examples of disclosures where the manager has little discretion are requirements of specified

formats, independent audits, and disclosure deadlines. Requirements by the SEC and security exchanges, however, do not necessarily eliminate all discretionary actions of the manager. The manager can still exercise discretion over timing, although this discretion is limited under the requirement that SEC Form 10-K be filed within 90 days following the end of the firm's fiscal year. If we further consider the relative lack of discretion in terms of quantity and quality of financial statements, we may reduce the three dimensions of the level of disclosure to one dimension without any substantial loss of generality. If the manager has good news (i.e.,auditor's opinion change to clean opinion or better performance than analysts' forecasts), it will be the best for managers to disclose the information as long as net insider trading benefit exceeds zero and the manager's portion of the signaling benefit (Vi'(T)-Vi) exceeds the signaling cost C(P2). Here some differences from the case of voluntary disclosure should be called to attention. First, the three dimensions of disclosure level are reduced to a single dimension, namely timing. Secondly, P1 (direct information cost) is no longer relevant because the information production cost is incurred whether or not the information is announced earlier than required. The indirect cost (P2) may be decreased due to the standardization of most information across firms, which implies a small proprietary cost. However, political cost,

a component of P2, may affect some larger firms' timing because they may not want to increase the public's awareness of high earnings by disclosing early. Therefore, the direction of P2 is difficult to predict.

It is appropriate at this point to define signaling more precisely. Signaling has been defined as an action taken by the seller of a higher quality product to distinguish his product from a poorer product (Spence, 1973). Spence showed that this signaling cost is negatively correlated with the quality of the product. Hence, firms which, in the opinion of managers, are undervalued by the market have an incentive to expend additional resources to signal the good news. Signaling can thus be used to explain the manager's motive with good news; however, it seemingly does not explain observed behavior in bad news cases. Why does the manager delay the disclosure after the opinion date? Hence in this thesis, signaling is defined as the systematic difference between the finishing date of monitoring by the independent auditor (approximated by the audit opinion date which is the last day of audit field work) and the actual announcement of the signal by management (approximated by the WSJ earnings announcement date). If the announcement date precedes the opinion date, we may call it a positive signal, and if the opposite is true, we may term it a negative signal. This relationship is shown in Figure 3.3.

Consider the mandatory disclosure of bad news. First, why do some managers try to delay the report while other managers do not delay the announcement? Second, is the behavior related to firm value? To shed light on these questions, consider Figure 3.4.

Intuitively, we would expect that the drop in the stock price could be delayed to the same extent that the manager delays the announcement. This is shown by case B in figure 3.4. If the market penalizes the delayed firms (Harrison, 1977), then firm value will drop further (case C). The opposite case is also possible under the assumption of market inefficiency (Givoly and Palmon, 1982). If this is the case, the optimal level of disclosure is as shown in Figure 3.5.

Signaling cost increases drastically just before the 90-day deadline because the cost of violating this statutory requirement can be high. T* is the optimal time for the delay of disclosure (optimal negative signaling time). The vertical axis of the diagram represents dollars divided by the total assets of the firm. This is done to correct for the "scale problem" encountered in studies when we compare large firms and small firms. After deflating by assets, we presumably bring the MSC of small and large firms to one scale and consequently make our comparisons valid. In this figure, an allowance is also made a possible size effect. Large firms, whose P2 costs (especially political costs and

pressure from analysts) are much higher, have a steeper curve (MSCL) compared to the smaller firms (MSCS). In this regard, it is interesting that Atiase (1985) found that earnings announcements by large firms had less information content. If that is true, it implies no incentive for managers of large firms to delay the announcement (i.e., T* will approach zero (opinion date)). If we expect large stock price decreases with negative signaling (case C), no signaling will occur because managers are rational. Figure 3.6 illustrates this case.

Figure 3.6 shows a corner solution which implies that the optimal timing for the announcement coincides with the opinion date (T*=0). If case C is true, then the obvious perplexity is why some managers nonetheless engage in negative signaling. This question can be answered by incorporating insider trading incentives (see equation 5), as shown in figure 3.7.

In addition to the incentives induced by an insider trading strategy, managers may delay bad news because they expect some good news regarding financing, production, or investment factors within the time of delay to mitigate or even eliminate the negative impact. Some possibilities in this regard include increased dividends, new sales contracts, mergers, and changing managements.

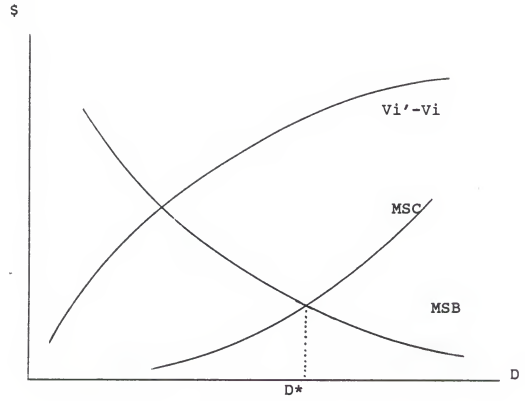

Figure 3.1
Optimal Disclosure Level

where MSB = marginal signaling benefit
MSC = marginal signaling cost
Vi = firm value without signaling
Vi'= firm value with signaling

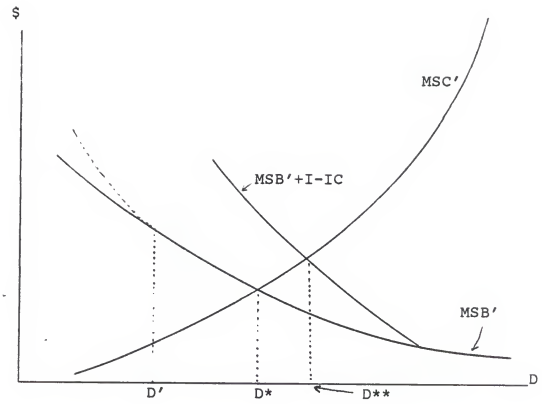

Figure 3.2
Optimal Disclosure Level with Insider Trading Opportunities

where MSC' = marginal signaling cost incurred by the manager
MSB' = marginal signaling benefit of the manager
I = insider trading benefit
IC = insider trading cost

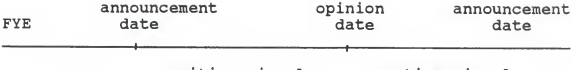

Figure 3.3
Positive and Negative Signal

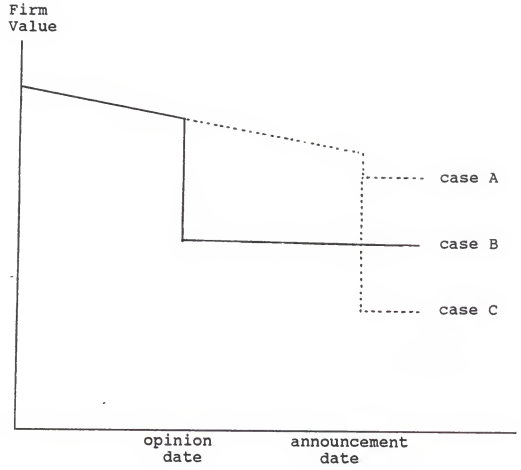

Figure 3.4
Firm Value and Disclosure of Bad News

_____ firm value if bad news are disclosed on time

..... firm value if bad news are disclosed late

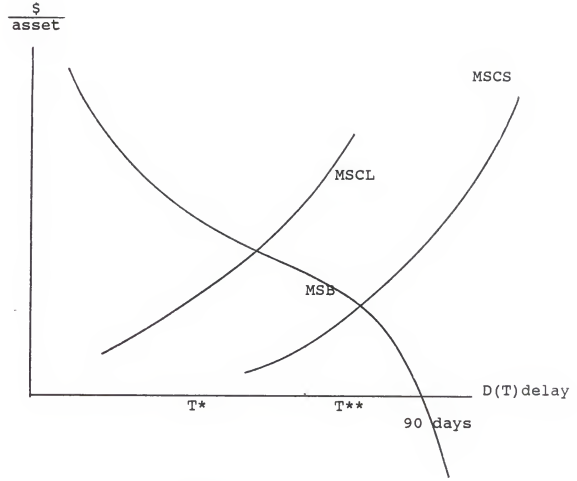

Figure 3.5
Firm Size and Optimal Disclosure Level

where MSCS = small firm's marginal signaling cost
MSCL = large firm's marginal signaling cost
MSB = marginal signaling benefit

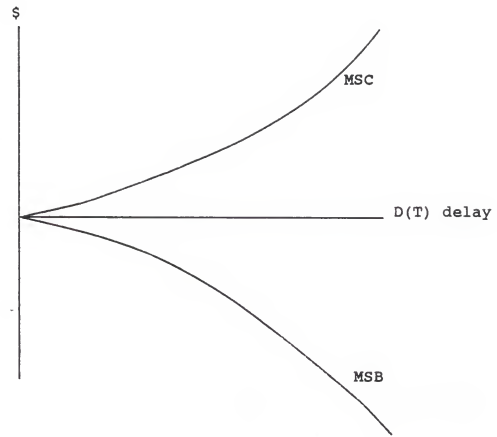

Figure 3.6
Negative Signaling

where MSB = marginal signaling benefit
MSC = marginal signaling cost

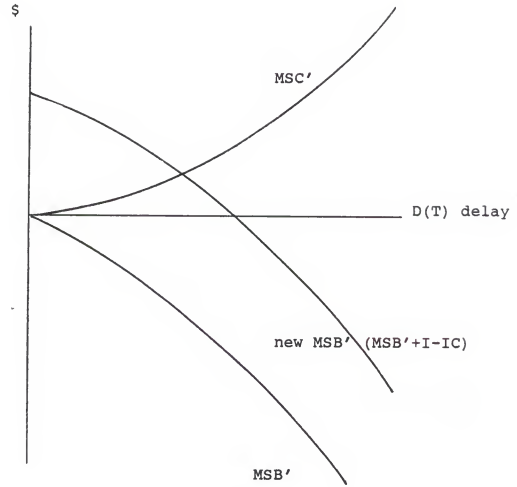

Figure 3.7
Negative Signaling with Insider Trading

where MSB' = marginal signaling benefit of the manager
MSC' = marginal signaling cost incurred by the manager
I = insider trading benefit
IC = insider trading cost

CHAPTER IV
HYPOTHESES TO BE TESTED

Several empirical questions arise from the theoretical framework developed above:

(1) Do firms who receive qualified audit opinions or disclaimers systematically delay earnings announcements?

(2) Do the results of (1) hold even after controlling for the earnings news effect and size effect?

(3) Do large firms really have no incentive to delay earnings announcement (figure 3.5)? Do any firms not engage in signaling?

(4) Does the information content of earnings announcements diminish with negative signaling?

(5) Do managers engage in insider trading during the signaling period?

Questions (1) to (3) are related to the timing issue, while (4) and (5) are related to the information content and insider trading issues. Based upon these questions, research hypotheses are grouped into three areas: timing, information content, and insider trading.

4.1 Timing Issue

4.1.1 Testing Of The Total Delay (FYE - WSJ)

Announcement of an audit opinion will have an impact on firm value if the qualification provides investors with new information about the uncertainty, or if the qualification itself imposes costs on the firm.[1] The extent to which qualifications can impose costs on firms is not clear (Dodd et al., 1984), but one cost of a qualified opinion for some firms is the possible violation of debt covenants.[2] If the manager perceives the receipt of qualified opinion as bad news, then he might delay the announcement in order to maximize his wealth. Hence, the following hypothesis is proposed:

H1: Firms having clean opinions will disclose earnings earlier than firms which experience changes to qualified opinions or disclaimers.

4.1.2 Testing Of The Audit Delay (FYE - Audit Opinion Date)

As posited by Givoly and Palmon (1982, p.491), the single most important determinant of the timeliness of the

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[1]The Cohen Commission stimulated interest in the information content of qualified opinions by recommending that auditors no longer provide qualified opinions for uncertainties if those uncertainties were adequately disclosed in footnotes to the annual report(AICPA, 1977).

[2]For example, see "American Motors Violates Some Terms of Bank Loan Accords", Wall Street Journal, Sep. 27, 1982, p.2.

earnings announcement is the length of the audit, which may be largely beyond the control of management. Since the auditor, who is also an utility maximizer, interacts with the manager, there may be disagreement about asset valuation, or negotiation about proper disclosure, which is related to the type of audit opinion that should be issued. If there is a dispute, then the auditor may find it necessary to consult with the home office or other experts, which possibly increases the audit delay. This possibility motivates the second hypothesis:

H2: Due to increased audit risk, firms that receive qualified audit opinions or disclaimers experience audit delays that are longer than firms that receive unqualified audit opinions.

4.1.3. Testing Of The Management Delay (WSJ - Audit Opinion Date)

As discussed in the theoretical framework, the intentional delay of information dissemination by management, or management delay, is the primary focus of this study. Figure 3.5 shows that under some conditions, the manager has an incentive to delay bad news, such as a change from an unqualified audit opinion. However, managers of larger firms have less incentive to delay the bad news, because indirect signaling costs are much higher for them

than they are for smaller firms. Hence the following two hypotheses are posited:

H3a: Managers of larger firms have little incentive to delay bad news (i.e., an audit opinion change to other than clean a opinion).

H3b: Small firms who receive other than clean opinions have the longest positive management delays.

The proposed hypotheses of the management delay can be summarized as follows:

	Audit Opinion Change	
	To Clean	To Qualified or Disclaimers
Large	-	-(?)
Size		
Small	0(?)	+

- : negative management delay (the manager announces the earnings earlier than the audit opinion date)

+ : positive management delay

4.2 Information Content Issue

From the theoretical framework, it is evident that information value depends on the quality and timing of financial information. In addition, longer reporting lags provide the opportunity for more of the information in the report to be supplied by other sources, either by search activity by investors or through predictions of earnings report supplied by the earnings releases of earlier reporting firms within a similar industry (Foster, 1981, Chambers and Penman, 1984). Hence, we can expect that later reports, whether delays are intentional or unintentional, would be associated with relatively less price variability than would earlier reports. However, ceteris paribus, management delay is expected to generate more variability because it is intentional. These expectations lead to the fourth set of hypotheses:

H4a: The longer the audit delay, the less the information content of the earnings announcement for the security market.

H4b: Similarly, the longer the management delay, the less the information content of the earnings announcement.

H4c: Management delay is more closely related to stock returns than is the audit delay.

4.3 Insider Trading Issue

Figures 3.2 and 3.7 in Chapter III show that insider trading opportunities increase the marginal signaling benefit and cause the optimal disclosure level to shift, given that the insider trading benefit exceeds insider trading cost.

For the test of insider trading activities, abnormal trading associated with the observed abnormal returns should be estimated. However, in the absence of data covering a history of insider trading, or normal trading, it is difficult to assess abnormal trading associated with observed abnormal returns (Penman, 1982). If a speculative position is taken before the public announcement, then trading behavior should be reversed following the public announcement. Increased selling should follow the public announcement of good news and increased buying should follow the public announcement of bad news. The following trading strategies are expected:[3]

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[3]For good discussion of insider trading strategies, see Abdel-Khalik, Ajinkya and Smith (1984).

Audit opinion	Earnings news	Before ann.	After ann.
To clean opinion	d > 0	P	S
To clean opinion	d < 0	?	?
To other opinion	d > 0	?	?
To other opinion	d < 0	S	P

where d = Xjt - Ajt

Xjt = actual reported earnings

Ajt = earnings forecasted by the analysts

P,S = purchase, sale

Accordingly, the following hypothesis is posited.

H5: Managers' best strategy is to buy the stock of their firms prior to the earnings announcement date if the audit opinion has changed from a qualified opinion to a clean opinion and if reported earnings are better than the market expectation.

CHAPTER V
RESEARCH DESIGN

5.1 Data

The following procedures were used to construct a sample of 183 audit opinion changes:

1. I selected all public firms with "subject to" qualified opinions and disclaimers of opinions reported on the National Automated Accounting Research System (NAARS) from 1981 to 1985. Financial institutions are excluded, as are firms with less than $20 million sales, due to restricted data availability.
2. I examined the 10-K for the appropriate year to confirm that the auditor's opinion was qualified or a disclaimer, or was changed to a clean opinion.
3. I determined whether the previous year's opinion was qualified in the 10-K, and continued searching prior years until an unqualified opinion was found, but I did not search prior to 1979.
4. My final sample for the timing issue consisted of first-year qualifications, i.e., all firms for which a "subject to" qualification or disclaimer of opinion was preceded by

an unqualified opinion, provided analysts' forecasts were available on the IBES tape.

5. Audit opinion dates were obtained through the auditor's report, and the dates of the first annual earnings announcements were obtained through the Wall Street Journal.[1]

This sample selection procedure is briefly summarized in table 5.1. The sample firms which experienced audit opinion change are obtained from NAARS from 1981 through 1985. Qualified opinions attributable to accounting changes are deleted in order to concentrate on the more relevant cases of audit uncertainty ("subject to" qualifications and disclaimers). These sample firms are deleted if WSJ announcement dates or audit opinion dates are not available. Since this study uses unexpected earnings from analysts' forecasts, several firms are also deleted because of their absence from the IBES Tape. One hundred eighty three firms are used for the test of the timing issue. For the study of information content, 141 firms are obtained as sample firms because the use of the COMPUSTAT daily excess return tape also excluded some sample firms. Finally, these same 183 sample firms are used for the insider trading study; however, 30 firms do not have insider trading records.

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[1]Preliminary earnings announcements are included if available, however the firms with preliminary announcements are less than 10%.

5.2 Timing Issue

The signature date on the auditor's report is used as a surrogate for the finishing date of audit monitoring. Management delay is obtained from the difference between the WSJ earnings announcement date and the auditor's signature date. Positive signaling and negative signaling are tested using the following models.

(1) AUDEL/TODELt-1 = a0 + a1 SIZE + a2 UES + a3 AUES
+ a4 OPIN + a5 IND + a6 SIZEUES + a7 SIZEOPIN

(2) MADEL/TODELt-1 = a0 + a1 SIZE + a2 UES + a3 AUES
+ a4 OPIN + a5 IND + a6 SIZEUES + a7 SIZEOPIN

where
SIZE = Ln(asset)
UES = standardized unexpected earnings
= (Xt-At)/Pt
Xt = reported earnings per share (EPS) at t
At = median analysts' EPS forecasts
Pt = equity price at t
AUES = absolute value of unexpected earnings
= (Xt - Xt-1)/P
OPIN = audit opinion (0,1)
0: clean opinion
1: qualified opinion or disclaimer
IND = industry (0,1)
0: non-utility firms
1: utility firms
AUDEL = audit delay
MADEL = management delay
TODELt-1= prior year's total delay

Opinion change is used as a surrogate for good/bad news. However, we also need to control for two types of

earnings effects. One (UES) is from the current market expectations (analysts' forecasts are used to get unexpected earnings), and the other (AUES) is based upon the martingale model. Earnings variable (Xt) shows the earnings per share before extraordinary items, which are identical to the EPS used in the IBES tape. An industry variable is also incorporated to distinguish the non-utility firms from the utility firms. Both dependent variables are standardized by prior year's total delay, since these models test the change of news (audit opinion) rather than the opinion itself.

5.3 Information Content Issue

Following May (1971) and Chambers and Penman (1984), this study uses the variance of the unexpected return in the announcement period to test the relationship between the abnormal stock returns and the delay (or audit opinion change). Residuals of returns are taken from the market model with estimates of the model's parameters obtained by means of OLS regression using realized values of Rit and Rmt during the non report period (t = -30,-2, +1, ..., +20). The residual return in day t of the report period is defined as:

$$Uit = Rit - (ai + biRmt) \qquad t= -1,0$$

where: Rit = return for firm i
Rmt = return for market portfolio.

The report period was also defined as a two-day period, covering the Wall Street Journal date of the report and the day before (Abdel-khalik, 1984). The research question implies nothing about the direction of the residual returns, only their magnitude. Therefore, transformations are performed on the estimated residuals to obtain a measure of information content. One such revaluation index[2] is that used by Beaver (1968):

$$RI = (Ui)^2/Si$$

where $(Ui)^2$ is the square of residual returns in report day t, and Si is the sample variance of the residuals during the nonreport period. However, this revaluation index, which is derived from squared values of Uit, ensures that disproportionate weight is given to a few large residual returns when price reactions are averaged across announcements (Oppong,1980). Since RI can be influenced by a few observations, following revaluation index that is used by May(1971) is adopted for this study:

$$RI' = AUit / AUi$$

where AUit = mean of the absolute values of abnormal returns over -1, 0 of the announcement days.
AUi = mean of the absolute values of abnormal return over 49 days of non-announcement days.

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[2]See Patell(1976) for analytical derivation of the distribution of the ratio Uit and a test statistic for the hypothesis.

If the ratio is greater than 1.0, the residual price change is larger than normal, and vice versa for a ratio of less than 1.0. The mean of RI' averaging across announcements is expected to be greater than 1.0 if the annual earnings announcements of the sample firms have information content. This revaluation index is regressed using the model:

$$RI' = a0 + a1\ UES + a2\ AUES + a3\ SIZE + a4\ OPIN + a5\ INDUSTRY + a6\ MADEL + a7\ AUDEL$$

5.4 Insider Trading

As hypothesized, the dependent variable of this study is the insider trading activity per se (not the price effects related to such activity). Net insider trading can be represented by two types of ratios -- one for the number of insider transactions and another for the number of shares traded. While the two variables should, by and large, be mutually consistent, each provides a different perspective of insider activity. The transaction basis does not reflect the intensity of sale or purchase, while the ratio for the number of shares transacted may be dominated by a few transactions. Hence, both ratios are used to test the insider trading activity:

$$IT1it = Sit/(Pit + Sit)$$

$$IT2it = Sit/(Pit + Sit)$$

where IT1it = insider trading ratio on the basis of number of shares of company i during period t.
IT2it = insider trading ratio on the basis of the number of transactions of company i during period t.
Pit = number of shares (transactions) purchased by the insiders of company i during period t
Sit = number of shares (transactions) sold by the insiders of company i for the period t.

The two independent variables, earnings news and audit opinion change, lead to the following research design.

	Earnings News	
	Good	Bad
To Clean Opinion	Cell A	Cell B
To Other Opinion	Cell C	Cell D

Hypothesis 5 posits that cell A is expected to have the lowest IT value while cell D is expected to have the highest IT value. The expectation of the above tests of hypothesis 5 can be written as follows:

$$(IT_{test} - IT_{nt})_{cell\ A} > (IT_{test} - IT_{nt})_{cell\ D}$$

where: test = six-month period before earnings announcements
nt = non-test period (six-month period following earnings announcements)

TABLE 5.1
SAMPLE SELECTION PROCEDURE

	1982-3	1983-4	1984-5
From NAARS	176	173	187
Opinion Change			
to clean	105	106	76
to other opinion	89	98	91
WSJ or Audit opinion N/A			
to clean	(40)	(34)	(36)
to other opinion	(15)	(18)	(14)
CUSIP or IBES N/A			
to clean	(20)	(25)	(11)
to other opinion	(28)	(19)	(20)
Other reason (e.g., still qualified opinion)			
to clean	(17)	(20)	(8)
to other opinion	(19)	(18)	(20)
Final Sample for timing issue			
to clean	28	27	21
to other opinion	27	43	37

CHAPTER VI
RESULTS

6.1 Timing Issue Results

Descriptive statistics for each of the variables are provided in Table 6.1 for the entire sample of 183 firms. Audit delay has a mean value of 53.48 days, with a standard deviation of 18.30 days. Similarly, the management delay variable has a mean value of 1.22 days, with a standard deviation of 19 days. Mean reporting delay (i.e., the total delay in the current year) is 54.70 days, with a standard deviation of 24.90 days. This delay is somewhat longer than that found in most previous studies. Givoly and Palmon (1982) determined the mean reporting delay to be 41 days, while Chambers and Penman (1984) reported an average delay of 44 days. Ball and Brown (1968) reported a mean delay of 39 to 56 days across the years they studied. However, these studies focused on NYSE firms, while the 183 sample firms in this study include NYSE and AMEX firms, as well as OTC firms. The mean value of sales is approximately $976.8 million, and this variable has a very large standard deviation of $1,524 million, due to the wide range of the sizes of the firms included in the sample. The frequency distribution of the dependent variables (i.e., audit delay

and management delay) are shown in Tables 6.2 and 6.3, respectively.

Panel A of Table 6.2 shows the percentages and cumulative percentages of AUDEL for various 10-day periods for the 183 companies, while panel B provides the deciles of the frequency distribution. Panel A indicates that some companies had audit delay much greater than the mean value of 53.48 days. In other words, the distribution of AUDEL is skewed substantially to the right. Hence, Ln AUDEL is utilized throughout this study in order to control for the skewness problem.

Table 6.3 shows the distribution of the management delay variable. Contrary to audit delay, management delay demonstrates a clustering of the distribution around the zero to six-day period, which includes almost 40 percent of the firms. About one-fifth of the sample firms announced earnings at least 7 days earlier than the audit opinion date, and a similar number of firms delayed their earnings announcements by over seven days. From this frequency table, we can estimate that slightly less than half of the firms are significantly involved in signaling. Another interesting result is the symmetry of the distribution. Management delay is clustered around the zero to five-day period, with a symmetric distribution.

Pearson correlation coefficients of these variables are provided in Table 6.4. As shown in the table, a high

correlation exists among several of the variables. MADEL has a significant positive correlation with TODELt-1, AUES and OPINION, and negatively correlates with UES and SIZE. This implies that a manager tries to delay the announcement if the audit opinion is not clean and if there is a significant change from the prior year's earnings. However, the manager tends to announce earnings earlier than the auditor's opinion date if firm size has increased and/or the reported earnings are greater than the earnings expected by the market. Audit delay also has a significant positive correlation with last year's total delay and with the opinion variable. But as firm size becomes larger, audit opinion delay decreases. Unexpected earnings also have a negative correlation with AUES and OPIN at the .01 level, which implies that a clean opinion is related to positive unexpected earnings. The absolute value of unexpected earnings obtained using a martingale process (AUES) has a positive correlation with opinion which is statistically significant at the .01 level, implying that a large change in earnings relative to the prior year increases the probability of receiving a qualified opinion or disclaimer.

Regression Results

The results obtained by regressing the full models described in Chapter 5 are shown in Tables 6.5 and 6.6. Company size, measured by Ln Sales, is positively related to

the length of the audit delay (significant at p=.001 level), which seems to imply that the larger the firm size, the longer the audit delay. This finding of a strong positive association between size and audit delay, however, does not correspond to previous findings, since most previous studies found that firm size was negatively correlated with the reporting delay, where the reporting delay was defined as the total delay. A possible explanation for this contrary finding is that as the firm size becomes larger, the higher is the probability that the firm's operation will become more complex, which in turn will increase the audit delay.

To control for operational complexity, this study uses a dependent variable which is standardized by the prior year's total delay. The result of a positive correlation between AUDEL/TODELt-1 and SIZE implies that a larger firms typically announce earnings earlier than their audit opinion date. However, the size variable has a negative correlation which is significant at the .001 level if reporting delay is defined as management delay. This indicates that the larger the firm size, the earlier the firm manager announces earnings, as compared to the audit opinion date. This result is strongly consistent with the hypothesis that the managers of larger firms have less incentive to delay the announcement of earnings beyond the audit opinion date. This issue will be examined in more detail later.

The standardized unexpected earnings (UES) is not significant for either of audit delay or management delay. The absolute value of the earnings change from the previous year (AUES) has the expected sign; however it is not significant in the audit delay regression. It is, however, closely related to management delay at the .10 level.

It is interesting to compare this result with Cho and Freeman's (1987) work, which hypothesized that a manager might time the earnings announcement for the purpose of earnings management and/or news management. They claim that accounting lags may be caused by management's search for accounting adjustments which will be used in order to smooth earnings per share.[1] Attempts to recognize future income in low earnings years and attempts to create hidden reserves in high earnings years may cause longer reporting delays in those years, especially if disagreements with auditors are more likely in those years. Hence, the AUES variable used in this thesis provides a good surrogate which can be used in order to test the earnings management hypothesis. Cho and Freeman also claim that reporting delay might be explained by managers' attempts to manage news, since management may advance or delay public earnings announcements, in an attempt to control the flow of news to

[1]Morse (1987) provides evidence that use of accounting choices to smooth earnings is associated with firm size, the existence of bonus compensation plans, and the divergence of actual earnings from expectation, where a random walk model is used to get the expected earnings.

the marketplace. The rationale is that management promptly announces those items expected to increase the price of the firm's common stock, and postpones those announcements that are expected to decrease the share price. To test this news management hypothesis, current market expectations of analysts are utilized. Their results demonstrate that the news management hypothesis is supported, but that the earnings management hypothesis is not supported, where they define the reporting delay as the total delay. Contrary to Cho and Freeman's result, this study's refined delay variable (i.e., management delay) is found to be associated with AUES (earnings management), which implies that the greater the change in a firm's earnings, the greater the incentive that a manager has to delay news, in order to gain the time required for income smoothing.

The opinion variable is also found to be related to audit delay. If a firm's opinion is changed to an opinion "other than an unqualified opinion", then audit delay increases. However, this opinion change variable does not significantly affect management delay, even though its sign indicates that an opinion change to a "clean opinion" reduces management delay. All the other variables have the expected sign; however, none of the remaining variables are statistially significant at the .10 level.

Some econometric issues must be considered here. If multicollinearity is present, then the computed estimates of

the regression coefficients tend to be unstable, and therefore statistical interpretation becomes tenuous. One simple way to check for multicollinearity is to examine the correlations between independent variables. As shown in Table 6.4, a degree of correlation between several of the variables is obvious. Several techniques were applied to test this multicollinearity issue in detail. Table 6.7 shows the results of the multicollinearity test using tolerance and variance inflation factors. The tolerance associated with any independent variable is defined as 1 minus the squared multiple correlation between that independent variable and the remaining independent variables. The variance inflation factor(VIF) which is the inverse of the tolerance, is also shown in Table 6.7. This Table shows that AUES and SIZEAUES have the lowest tolerance values for the audit delay variable, while UES and SIZEUES have the lowest values for the management delay variable.

Table 6.8 provides the regression results obtained after deleting the variables with the lowest tolerance values. The results obtained after the deletion of the most collinear variables are almost identical to the results obtained by estimating the full model, the results of which were described in Table 6.5 and 6.6.

Besides the multicollinearity issue, two other issues must also be explored in order to provide greater assurance as to the validity of the results. First, since in both

models the total delay of the prior year (TODELt-1) is a dominant covariate, and since it has a high correlation with most of the other variables, other regression models were run without the TODELt-1 variable. Results are shown in Table 6.9.

Table 6.9 indicates that the management delay regression has almost an identical result as did the previous regression which included TODELt-1. In both regressions, SIZE and AUES are significant, and R^2 is similiar in both cases. However, in the case of the audit delay regression, IND is now significant at the 1% level while the SIZE variable is now insignificant. A possible explanation for this difference is the high correlation between SIZE and IND.

Table 6.10 provides a very interesting result. Forty large (small) firms are selected by choosing those firms that belong to the top (bottom) 40 firms among the 183 sample firms in terms of sales. The mean reporting delay is compared between large and small firms, and a test is conducted to determine how firm size affects reporting delay, given a specific level of news (i.e., opinion change). The mean of audit delay for the "to clean opinion" firms is .89 days longer than that of the "to other opinion" firms. The mean difference of total delay is 2.73 days for the large firms. For small firms, however, the mean reporting delay for "firms changed to clean opinion" is

29.59 days shorter than the lag for "firms changed to other opinions." The former difference is not significant at conventional levels, while the latter difference is statistically significant at the .001 level, using a t test which allows for unequal variances.

In addition to the analysis on the overall sample, the sample firms were classified into two subsamples (i.e., non-utility firms and utility firms). The utility firms possess many similar attributes, especially in the area of of audit opinions, because of the homogeneity of their risk. Table 6.11 demonstrates an interesting result. The difference of the length of the audit delay between clean and other opinion firms is not significantly different for the utility firms, while the non-utility firms have significant differences in audit delay. One possible explanation is the size effect discussed above, since size differences are relatively small among the utility firms. Another possible explanation is that the audit opinion of a utility firm is usually easier to predict, since there are typically relatively few areas of dispute between the auditor and the management of an utility firm. However, a large difference exists among utility firms in the case of management delays, which is dependent upon the type of opinion they receive. This is true even though these firms all belong to the same industry.

6.2 Information Content Issue

Table 6.12 provides the mean and the frequency table of the dependent variable which is used in the information content analysis (i.e., the revaluation index). The mean revaluation index (1.2528) exceeds its expected value of 1, which implies that on average more information is conveyed to the market during periods when earnings reports are released than at other times. This result is consistent with previous studies (e.g., Beaver, 1968; May, 1971)[2].

Table 6.13 provides regression results obtained by regressing the full model described in Chapter V. Among the seven independent variables, MADEL, SIZE, and IND are the most significant variables. However, since a multicollinearity problem might be present here, the most highly correlated variables are deleted (see the Pearson Correlation Matrix in Table 6.4). In particular, the size variable is deleted because it is a comprehensive variable which has been used in other studies to proxy for various aspects of the firm (Morse, 1987). Size could be a proxy for leverage (Holthausen, 1981; Leftwich, 1981), information production costs (Firth, 1979), competitive advantage (Belkaoui and Kahl, 1978), predisclosure information

[2]This value is somewhat higher than that determined by Oppong (1980), who determined the mean value to be 1.019. However, his index is based on a weekly return basis, which might account for the difference.

(Ohlson, 1979; Atiase, 1985), or political costs (Watts and Zimmerman, 1985).

Table 6.14 describes the results which are obtained after the most highly correlated variables are deleted. These results are almost identical to those of Table 6.6. Model 1 provides the regression results which are obtained by excluding SIZE, AUES, and AUDEL. AUES is deleted because management delay is expected to be highly correlated with current market expectations, and because it is highly correlated with UES. AUDEL is deleted in model 1 because of the correlation which exists between AUDEL and MADEL. The coefficient on unexpected earnings (UES) has the predicted sign, but is still insignificant, even after the deletion of AUES. OPIN has a positive sign, which implies that the earnings announcements of firms whose audit opinions are changed to other than clean opinions have more price variability than those of firms which receive clean opinions. However, the increased variability is relatively insignificant. This result is consistent with previous studies which examined security returns associated with "subject to" qualified audit opinions.

Previous studies have not detected any significant stock price responses to disclosures of qualified audit opinions (e.g., Dodd et al., 1984; Elliott, 1982). Dodd et al. investigated whether announcements of "subject to" audit opinions or disclaimers of opinions affect stock prices.

Their results indicate that many firms experience negative abnormal performance prior to the release of qualified opinions; however, there is little evidence of a stock price effect when qualifications are publicly disclosed. Elliott (1982) reported similar results, but he also reported some abnormalities. Elliott detected a significant abnormal performance of -4.8% over a two-day announcement window for fourteen firms whose receipt of a qualified opinion was reported in the Wall Street Journal. This result is consistent with Dopuch et al.'s result (1986).

Non-utility firms' announcements possess more information content, on average, than utility firms' announcements at the 5% level, and the IND varible has a negative coefficient. If informational transfers from one firm to another firm within the same industry exist (Foster, 1981), then one might expect to observe small price variability for firms within relatively homogeneous industries. The utility industry is a good example of a relatively homogeneous industry.

The most significant variable is management delay (MADEL), which is the variable of primary importance in the information content analysis. As expected, MADEL has a negative coefficient (p=0.01), while the coefficient of AUDEL is not significant at the .10 level. This finding warrants further discussion. Givoly and Palmon (1982) found no significant relationship between the length of the

reporting lag and the magnitude of market activity in the announcement period, where reporting delay was defined as the difference between the fiscal year end and the announcement date. However, when delay was defined as the difference between the expected and the actual announcement date, they found more pronounced market reactions for those reports that were released earlier than expected. Chambers and Penman (1984) reported results similar to Givoly and Palmon's. However, neither study controls for other possible confounding factors, (e.g., size and opinion effects). In fact, Chambers and Penman recognized that their results could have been confounded by a size effect. This study incorporates size and unexpected earnings effects where unexpected earnings are measured relative to analysts' forecasts. Also, the total delay variable which was used in previous studies is divided into intentional delay and unintentional delay components, with results strongly supporting the hypothesis that market reactions deteriorate as the intentional delay component increases. This result may explain why the previous studies failed to find intense market reactions for the earlier earnings announcements.

Table 6.14 shows the regression results of the model which excludes SIZE, UES, and management delay. This model tests whether stock market reaction is a function of AUES, audit opinion, industry, and audit delay; however, none of

the variables produces significant results, and the model itself is insignificant (F value = 1.211).

To confirm these findings, two other supplementary tests were conducted. First, to further test the multicollinearity issue, tolerance and variance inflation factor (VIF) values were obtained, which are reported in Table 6.15. Table 6.15 clearly shows that the independent varibles are not highly correlated. Therefore, the results discussed above are not affected by a multicollinearity problem.

Another test was made to check the influence of each observation on the estimated and predicted values. As a measure of influence, Cook's D is used to measure the change in the estimates that results from deleting each observation (Cook, 1979). One rule of thumb is to regard the observation as an influential observation if its COOK's D value is above 1. The test, however, shows that the largest value of COOK's D is 0.124.

6.3 Insider Trading Issue

Table 6.16 reports some summary statistics related to variables which are hypothesized to reflect insider trading activities. The average number of transactions engaged in during a six-month period ranges from 1.569 to 4.294. Similarly, the mean number of shares traded during a six

month period is between 49,469 and 213,033 shares. To test for a difference in insider trading activity before and after an earnings announcement, several dependent variables are formed based upon the above insider trading variables. The dependent variables utilized represent trading ratios which are based upon the number of shares traded or transactions engaged in during the test period (six months before an earnings announcement) and during the control period (six months after). These statistics are summarized in Table 6.17.

Hypothesis 5 posits that a manager is in a net purchasing position until the earnings announcement date if the firm's audit opinion is changed from a qualified to a clean opinion, and if earnings are higher than the market expectation. Similarly, a manager is predicted to be in a net selling position if the situation is reversed. The statistical tests used in order to analyze these hypotheses include univariate paired-comparison t tests, and regression analysis. In the case of the paired comparisons between pretest data and posttest data, the variables which represent the mean diffences between the paired variables are determined to be significantly different from zero.

Tables 6.18 and 6.19 provide the results of the paired-comparison t tests. VDIF and TDIF are used in order to test the differences between volume traded and transactions engaged in before and after earnings announcement dates.

These tables demonstrate that the respective means of these two variables have the expected signs. The negative sign in cell 1 implies that managers in cell 1 are in a net purchasing position. Similarly, the results imply that managers in cell 4 are in a net selling position. However, the differences are not statistically significant for any of the four cells.

To corroborate the above results, the ratio between the shares traded (or number of transactions) before and after earnings announcement dates are used in order to test the insider trading opportunities of managers. RATIOT and RATIOV are usd in this analysis, where RATIOT is defined as RTP1/RTP2 and RATIOV is defined as RVP1/RVP2. These two dependent variables are regressed on the five primary independent variables used in the timing issue study and the information content study. The results are reported in Table 6.20. The OPINION variable is statistically significant if the dependent variable is based upon the number of transactions engaged in, while the size variable is significant if the dependent variable is based upon the number of shares traded. However, neither model is well specified. The significance levels of both models are less than .20, and the adjusted R^2 values are very low.

The results are not consistent with the hypothesis that insiders utilize their privately held information in order to earn abnormal profit. One possible explanation is that

insider trading based upon private information occurs primarily in small firms. Therefore, the sample firms are segmented into large (sales > $1.5 billion), medium, and small firms (sales < $100 million), and then the differences between large and small firms are tested. The results are reported in Table 6.21. The results of Table 6.21 do not support the hypothesis that small firms possess a larger difference between clean and other types of audit opinions.

Several explanations can be suggested for these results. One possible reason may be due to the insufficient data (e.g., the Official Summary of Insider Trading may only represent a part of the trading records of insiders). Another reason relates to the SEC Official Summary. The SEC records exclude options in the determination of the number of shares purchased; however, the SEC includes the exercise of options in the determination of the number of shares sold. Hence, this exclusion possibly induces a bias against the insider trading hypothesis in the bad news case. Another possible explanation may be ascribed to high expected penalties associated with insider trading. As can be seen in Figure 3.2, managers might not engage in insider trading based upon private information because the unexpected penalties from engaging insider trading exceed the expected benefits.

TABLE 6.1
DESCRIPTIVE STATISTICS FOR EACH OF THE VARIABLES

Variable	MEAN	S.D	Minimum	Maximum
MADEL	1.22	19.03	-65	106
AUDEL	53.48	18.30	20	101
TODEL	54.70	24.90	19	181
TODELLY	51.83	28.50	17	233
UES	-.21	.76	-5.92	2.21
AUES	.50	1.35	0	12.39
OPIN	.58	.50	0	1
SIZE	5.87	1.52	2.56	9.21
SALES($M)	976.79	1524	13	10044

TABLE 6.2
FREQUENCY DISTRIBUTION OF AUDIT DELAY

Panel A			Panel B	
# of days	%	Cum. %	Decile	# of days
up to 20	.7	.7	.10	35
21 - 30	4.6	5.3	.20	39
31 - 40	16.6	21.9	.30	44
41 - 50	23.8	45.7	.40	47
51 - 60	19.2	64.9	.50	53
61 - 70	12.6	77.5	.60	56
71 - 80	5.9	83.4	.70	64
81 - 90	14.6	98.0	.80	75
above 90	2.1	100.0	.90	85
			1.00	101

TABLE 6.3
FREQUENCY DISTRIBUTION OF MANAGEMENT DELAY

Panel A			Panel B	
# of days	%	Cum %	Decile	# of days
up to -40	2.6	2.6	.10	-16
-39 to -30	2.7	5.3	.20	-7
-29 to -20	3.3	8.6	.30	0
-19 to -10	8.6	17.2	.40	1
-9 to 0	14.6	31.8	.50	2
1 to 10	51.6	83.4	.60	4
11 to 20	5.3	88.7	.70	6
21 to 30	3.4	92.1	.80	9
31 to 40	3.3	95.4	.90	24
41 to 50	3.3	98.7	1.00	106
above 51	1.3	100.0		

TABLE 6.4
PEARSON CORRELATION COEFFICIENTS

	MADEL	AUDEL	TDELLY	UES	AUES	OPIN	SIZE	IND	TODEL
MADEL	1.0								
AUDEL	-.11	1.0							
	(.137)								
TDELLY	.40	.48	1.0						
	(.0001)	(.0001)							
UES	-.24	-.18	-.20	1.0					
	(.0009)	(.017)	(.0064)						
AUES	.21	.08	.09	-.51	1.0				
	(.0051)	(.2898)	(.2115)	(.0001)					
OPIN	.26	.21	.008	-.19	.21	1.0			
	(.0004)	(.004)	(.92)	(.009)	(.005)				
SIZE	-.33	-.29	-.44	.13	-.02	-.20	1.0		
	(.0001)	(.0004)	(.0001)	(.08)	(.03)	(.04)			
IND	-.18	-.26	-.27	.13	-.16	.15	.27	1.0	
	(.01)	(.0004)	(.0002)	(.08)	(.03)	(.04)	(.0002)		
TODEL	.68	.65	.66	-.32	.22	.35	-.46	-.34	1.0
	(.0001)	(.0001)	(.0001)	(.0001)	(.003)	(.0001)	(.0001)	(.0001)	

TABLE 6.5
REGRESSION RESULTS

Dep Var: Ln (AUDEL/TODELt-1)			Dep. Mean=.0844
			R^2=.198
	F=6.175 (.0001)		Adj.R^2=.166
Variables	Par.Estimate	St.Error	t for Ho
Intercept	-.828	.187	-4.435***
SIZE	.135	.029	4.632***
AUES	.060	.145	.413
UES	.032	.047	.694
OPIN	.415	.245	1.693*
IND	-.035	.084	-.421
SIZEAUES	-.014	.023	-.618
SIZEOPIN	-.031	.040	-.765

* Significant at .10 level, one sided.
** Significant at .05 level, one sided.
*** Significant at .01 level, one sided.

TABLE 6.6
REGRESSION RESULTS

Dep. Var. = MADEL/TODELt-1			Dep. Mean=-.065
			R^2=.204
	F=6.397 (.0001)		Adj.R^2=.172
Varibles	Par.Estimate	St.Error	t for Ho
Intercept	.413	.223	1.853*
SIZE	-.097	.035	-2.776***
AUES	.056	.031	1.799*
UES	.230	.216	1.063
OPIN	.280	.295	.949
IND	-.092	.101	-.910
SIZEUES	-.047	.035	-1.316
SIZEOPIN	-.027	.048	-.550

* Significant at .10 level, one sided.
*** Significant at .01 level, one sided.

TABLE 6.7
TEST OF MULTICOLLINEARITY USING
TOLERANCE AND VARIANCE INFLATION FACTORS

Dep. Var.:	AUDEL/TODELt-1		MADEL/TODELt-1	
Ind.Var.	Tolerance	VIF	Tolerance	VIF
Intercept	.	0	.	0
SIZE	.412	2.426	.422	2.37
AUES	.021	47.146	.688	1.45
UES	.652	1.532	.044	22.51
OPIN	.056	18.02	.056	17.85
IND	.794	1.259	.803	1.25
SIZEAUES	.022	44.848	-	-
SIZEUES	-	-	.047	21.35
SIZEOPIN	.056	17.846	.057	17.54

TABLE 6.8
REGRESSION RESULTS AFTER DELETING
THE VARIABLES WITH THE LOWEST TOLERANCE VALUES

Dep Var : AUDELS			Dep Var : MADELS		
Variable	Par.Est	t for Ho	Variable	Par.Est	t for Ho
Intercept	-.816	-4.413***	Intercept	.465	2.076**
SIZE	.133	4.583***	SIZE	-.105	-3.005***
UES	-.027	.155	AUES	-.233	-1.437
OPIN	.441	1.819*	OPIN	.363	1.238
IND	-.012	-.151	IND	-.077	-.760
SIZEUES	.013	.442	SIZEAUES	.049	1.865*
SIZEOPIN	-.038	-.953	SIZEOPIN	-.041	-.848
R^2=.192 Adj.R^2=.164			R^2=.201 Adj.R^2=.181		
F=6.949(.0001)			F=7.717(.0001)		

* Significant at .10 level, one sided.
** Significant at .05 level, one sided.
*** Significant at .01 level, one sided.

TABLE 6.9
REGRESSION RESULTS EXCLUDING TODELt-1

Dep Var : AUDEL			Dep Var : MADEL	
Variable	Par. Est	t for Ho	Par. Est	t for Ho
Intercept	53.091	6.511***	15.201	1.831*
SIZE	-.469	-.367	-3.154	-2.426**
AUES	3.445	.519	-12.841	-1.899*
UES	-12.964	-1.551	2.261	.266
OPIN	19.218	1.788*	16.695	1.526
IND	-10.872	-2.963***	-5.009	-1.341
SIZEUES	1.821	1.356	-1.104	-.808
SIZEAUES	-.683	-.658	2.235	2.115**
SIZEOPIN	-2.038	-1.154	-1.557	-.866
R^2=.194 Adj.R^2=.157			R^2=.228 Adj.R^2=.192	
F=5.244(.0001)			F=6.415(.0001)	

TABLE 6.10
ANNOUNCEMENT DELAY BY LARGE AND SMALL FIRMS

	# of Firms	Audit Delay	Mgt. Delay	Total Delay
All firms				
To clean	76	48.95	-4.62	44.33
To other opinions	107	56.70	5.36	62.06
Large firms				
To clean	23	46.70	-10.13	36.57
To other opinions	17	47.59	-8.29	39.30
Small firms				
To clean	13	48.31	-0.64	47.67
To other opinions	27	65.85	11.41	77.26

TABLE 6.11
ANNOUNCEMENT DELAY BY UTILITY AND NONUTILITY FIRMS

	Non utility		Utility	
Audit delay	#day	#firm	#day	#firm
to clean	49.50	68	46.70	8
to other opin.	60.73	83	47.58	24
Magt delay				
to clean	-3.99	68	-10.00	8
to other opin.	8.46	83	-5.33	24
Total delay				
to clean	45.5		34.25	
to other opin.	69.19		37.42	

TABLE 6.12
FREQUENCY DISTRIBUTION OF REVALUATION INDEX

Value	Frequency	%	Cum.%	Decile	R.I.
.00 - .20	4	2.8	2.8	.10	.36
.20 - .40	12	10.5	11.3	.20	.53
.40 - .60	17	12.8	24.1	.30	.69
.60 - .80	16	11.4	35.5	.40	.89
.80 - 1.00	15	10.6	46.1	.50	1.11
1.00 - 1.20	13	9.2	55.3	.60	1.28
1.20 - 1.40	16	13.5	68.8	.70	1.42
1.40 - 1.60	9	7.1	75.9	.80	1.90
1.60 - 1.80	4	2.8	78.7	.90	2.37
1.80 - 2.00	3	2.2	80.9	1.00	5.07
2.00 - 2.20	7	5.6	86.5		
2.20 - 2.40	6	4.3	90.8		
2.40 - 2.60	3	2.1	92.9		
2.60 - 2.80	3	2.8	95.7		
2.80 - 5.10	6	4.3	100.0		
	141 firms				

TABLE 6.13
REGRESSION RESULTS

Dep. Var.: RI'		R^2=.095 Adj.R^2=.047
Mean=1.2528		F = 1.991
Variables	Parameter Estimate	t value
Intercept	1.9579	3.827
Size	-.1034	-1.741*
AUES	-.0270	-.414
UES	.1349	.777
OPIN	.1361	.815
IND	-.3746	-1.786*
AUDEL	-.0020	-.385
MADEL	-.0148	-2.821***

* Significant at .10 level, one sided.
** Significant at .05 level, one sided.
*** Significant at .01 level, one sided.

TABLE 6.14
REGRESSION RESULTS EXCLUDING HIGHLY CORRELATED VARIABLES

	Model 1	Model 2
Intercept	1.181	1.013
UES	.089	
AUES		-.032
IND	-.424**	-.296
OPIN	.152	.051
AUDEL		.005
MADEL	-.012***	
F value	2.093*	1.211

* Significant at .10 level, one sided.
** Significant at .05 level, one sided.
*** Significant at .01 level, one sided.

TABLE 6.15

TOLERANCE AND VARIANCE INFLATION FACTOR VALUES

Dep Var. RI'		
Var.	Tolerance	VIF
Intercept	.	0
AUES	.717	1.394
OPIN	.778	1.285
IND	.763	1.311
SIZE	.738	1.354
UES	.643	1.555
MADEL	.666	1.502

TABLE 6.16
SUMMARY OF INSIDER TRADING VARIABLES

VARIABLE	MEAN	S.D	MIN.	MAX.
TP1	2.092	6.983	0	79
TS1	3.320	5.962	0	53
TP2	1.569	2.960	0	20
TS2	4.294	23.734	0	292
VP1	213,033	2,044,806	0	25,167,300
VS1	49,756	232,019	0	2,548,200
VP2	49,469	255,131	0	2,000,600
VS2	51,218	299,501	0	3,488,000

Where T: number of transactions
V: number of shares traded
S: sale
P: purchase
1: -6 to 0 month
2: 0 to +6 month

TABLE 6.17
SUMMARY OF DEPENDENT VARIABLES

VAR.	MEAN	S.D	MIN.	MED.	MAX.
RTP1	.4798	.4423	0	.50	1
RTP2	.4531	.4407	0	.333	1
RVP1	.4812	.4641	0	.511	1
RVP2	.4776	.4701	0	.375	1

Where RTP= TS/(TP+TS)
RVP= VS/(VP+VS)

TABLE 6.18
PAIRED-COMPARISON t TEST (VOLUME BASIS)

DEP. VAR : VDIF = RVP1 - RVP2

CELL	MEAN	STD.ERROR	t	p> t
1	-.1146	.1236	-.93	.3625
2	.0343	.0809	.42	.6741
3	.1251	.0796	1.57	.1251
4	.0108	.0814	.13	.8945

Where cell 1: clean opinion, UE>0
cell 2: clean opinion, UE<0
cell 3: other opinions, UE>0
cell 4: other opinions, UE<0

TABLE 6.19
PAIRED-COMPARISON t TEST (TRANSACTION BASIS)

Dep. Var.: TDIF=RTP1-RTP2

Cell	Mean	Std. Er.	t	p> t
1	-.0855	.110	-.78	.444
2	.0358	.079	.45	.652
3	.1272	.079	1.60	.119
4	.0108	.081	.13	.895

TABLE 6.20
REGRESSION RESULTS

Variables	RATIOT			RATIOV		
	Par.Est.	S.E	t	Par.Est.	S.E	t
INTERCEPT	.5828	.3687	1.581	-37.618	26.24	-1.433
SIZE	.0222	.0556	.401	8.336	3.96	2.11**
UES	.009	.106	.087	-1.833	7.55	-.243
AUE	.000	.0126	.004	.352	.89	.393
OPIN	-.354	.171	-2.063**	-5.928	12.20	-.489
IND	.102	.216	.474	-13.71	15.39	-.891
	F=1.132(.346)			F=1.252(.287)		
	R^2=.04 Adj.R^2=.01			R^2=.04 Adj.R^2=.01		

** = Significant at .05 level

Where RATIOT=RTP1/RTP2
RATIOV=RTV1/RTV2

TABLE 6.21
LARGE VS. SMALL FIRMS (TRANSACTION BASIS)

SIZE	OPINION	MEAN	S.D	MIN.	MAX.
LARGE	TO CLEAN	.691	.790	0	3.0
FIRMS	TO OTHER	.386	.581	0	2.0
SMALL	TO CLEAN	.517	.607	0	1.36
FIRMS	TO OTHER	.521	.816	0	3.4

CHAPTER VII
CONCLUSION

7.1 Summary

The purpose of this dissertation is to explain managerial actions in disclosing private information through mandatory disclosures. Earlier studies have examined the association between reporting delays and unanticipated changes in earnings. Some studies report that unexpected earnings are related to the timing of earnings announcements, while other studies do not detect this relationship. The mixed results may be attributable in part to the differences in the ways the previous studies defined good and bad news, and also may be attributable in part to the differences in the sizes of firms included in the samples. This study tries to extend the existing research by overcoming several shortcomings of the previous studies. First, this study considers an audit opinion change as a surrogate for good news or bad news. Also, possible confounding effects (e.g., unexpected earnings) are controlled by the use of a sophisticated earnings expectation model, which is based on analysts' forecasts. Second, this study refines reporting delay by separating it into intentional delay (management delay) and unintentional

delay (audit delay). This separation may explain the possible source of the announcement delay. Third, this study provides some initial exploration of the information content of audit opinion changes in relation to announcement delays, and provides a test of insider trading opportunities in relation to audit opinion changes.

Besides these operational enhancements, this study also aims to address the demand for theory by modeling timing as a determinant of the information value of earnings reports. From the equation for the value of an information system, four determinants are identified: (1) the decision maker's initial uncertainty, (2) the decision maker's initial action set, (3) the signal generating function, and (4) the utility function. Information timing could be an important parameter if the decision maker's perceived relationship between signals and states is dependent upon the timing of the signal. However, not all of these determinants are under the manager's discretion. The timing of a signal and the characteristics of the signal generating function are determinants that are typically under the control of the manager. These two determinants can be restated as the timing, quality, and quantity of the information.

In the non-regulatory setting, it is shown that the optimal level of disclosure (in terms of timing, quantity, and quality) is determined at the point where the marginal signaling benefit equals the marginal signaling cost. The

preceding result may explain the observed phenomenon that only a small portion of public firms voluntarily disclose information such as management earnings forecasts. It is also shown that when insider trading opportunities are allowed, managers have higher incentives to increase disclosure levels.

In the case of mandatory disclosures, even though the disclosure level is set by the regulatory body, a manager can still exercise some discretion over announcement timing, although discretion is limited under the SEC's requirement that all public firms' 10-K reports be filed within 90 days following the end of the firms' fiscal year. Given this restriction, this thesis attempts to explain why some managers try to delay announcements which contain bad news, while other managers do not delay earnings announcements. A firm size effect, which is caused by different signaling structures, is identified as one explanation. Insider trading opportunity is also incorporated in an attempt to explain the observed phenomenon that managers sometimes delay bad news, even though these announcement delays often result in a drop in firm value greater than the drop which occurs if the announcements are not delayed.

From the theoretical framework developed, hypotheses relating to three major areas are posited. The first area concerns the timing issue. As hypothesized, it is found that size is significantly related to both audit delay and

to management delay. The audit opinion variable is also found to be related to audit delay, but not to management delay. This result supports the hypothesis that managers of larger firms have less incentive to delay the announcement of bad news. Also, results demonstrate that the greater the change in a firm's earnings, the greater the incentive that a manager has to delay the news, in order to gain the time required to engage in income smoothing activities. To corroborate these results, tolerance values and variance inflation factors are obtained in order to control for a possible multicollenearity problem. However, the results obtained after the deletion of correlated variables are almost identical to the prior results.

Second, the information content of audit opinions are tested in relation to reporting delays. The results support the hypothesis that the management delay (i.e., intentional delay) variable, which is the variable of prime interest in this thesis, has a negative coefficient which is significant at the .01 level. However, audit delay is determined to not be significantly related to the market reaction to earnings announcements. However, industry and size variables are found to be significantly related to the market reaction.

The last issue concerns the trading behavior of insiders, who are usually presumed to posess advance information which they can trade upon. If this assumption is valid, then one should observe unusual insider trading

activity before the announcement of unexpected good news. The results, however, fail to indicate insider trading activities which are designed to earn a profit from the advance information possessed by insiders. Possible reasons for this result are insufficient data (e.g., the SEC Official Summary may only indicate a part of the trading activities of insiders), and the naive specification of audit opinion change surprises.

7.2 Limitations

The theoretical framework described in this dissertation provides an initial explanation of the information timing area. But as with any explanatory work, this dissertation has several limitations. First, published corporate earnings announcements are not confined to the Wall Street Journal, which is the only source utilized in this study. A possible extension would involve extending the sources of information to other information sources such as the Dow Jones News Retrieval System. Another crucial element of the investigation relates to the proper identification of surprises. Without knowledge of the properties and the behavior of the audit opinion model, it is difficult to accurately determine the surprise of the market concerning an audit opinion. Finally, as indicated by Larker et al. (1983), a theory of insider trading does

not presently exist, and thus the interpretation of empirical insider trading results is rendered difficult.

APPENDIX A
VALUE OF INFORMATION SYSTEM
(Adopted from Itami (1976) and Demski (1972)).

Consider the utility of cash flow U(s,a,H) if information system H is used, act a is eventually selected, and state s is obtained,

where $H: s \rightarrow y$

$$f(y|H) = \Sigma f(s)$$

Having received signal y, the conditional probability is

$$f(s|y,H) = \begin{cases} \dfrac{f(s)}{f(y|H)} & \text{if } y = H(s) \\ 0 \end{cases}$$

and the conditional expected utility with act a is:

$$E(U|a,y,H) = \Sigma U(s,a,H)\ f(s|y,H) \qquad (1)$$

The maximum is:

$$E(U|y,H) = \text{Max } E(U|a,y,H) \qquad (2)$$

The expected utility associated with system H is therefore:

$$E(U|H) = \Sigma f(y|H)\ E(U|y,H) \qquad (3)$$

$$= \Sigma f(y|H)\ \text{Max } E(U|a,y,H) \quad \text{from (2)}$$

$$= \Sigma f(y|H)\ \Sigma U(s,a,H)\ f(s|y,H) \quad \text{from (1)}$$

After the decision maker receives signal y from system H, his optimizing action is:

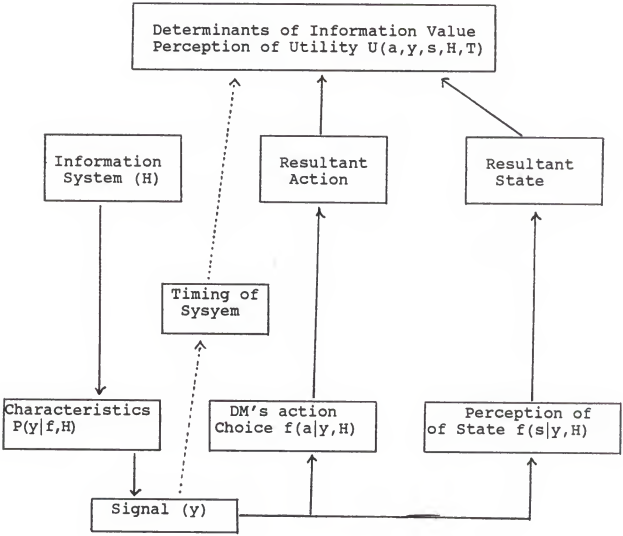
$$E(U|y,H,a^*) = \text{Max} \sum U(s,a)\ f(s|y,H)$$

Now, the information marketer offers to sell to the decision maker the system H, which will produce the uncertain signal y. The maximum amount the decision maker would pay for this service is: $E(U|H) - E(u|a^*)$

Hence the value of information system V(H) is:

$$V(H) = E(U|y,H,a^*)\ f(y|H) - E(U|a^*)$$

APPENDIX B
DIAGRAM OF THE DETERMINANTS OF INFORMATION VALUE
(adoped from Demski(1972) with modification)



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BIOGRAPHICAL SKETCH

Jang Youn Cho was born on August 18, 1952, at Seochun, Korea. He graduated from Kyung Bock High School and received his B.A degree from Han Kuk University of Foreign Studies, Seoul in Feb. 1978. From 1977 through 1980, he worked for Dae Woo Corporation as a new project analyst.

He then came to the U.S. and received his Master of Professional Accounting degree from the University of Texas at Arlington in 1983. While enrolled in the doctoral program at the University of Florida, Jang served as a graduate teaching/research assistant. He is also professionally accredited as a Florida C.P.A. He will be joining the University of Nebraska at Lincoln as a faculty member starting Fall, 1987.

He is married to Kyungja and has two children, Sungjin and Hyejin.

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

Rashad A. Abdel-khalik, Chairman
Graduate Research Professor of
Accounting

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

Bipin Ajinkya
Professor of Accounting

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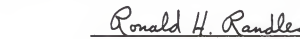

Ronald H. Randles
Professor of Statistics

This dissertation was submitted to the Graduate Faculty of the Fisher School of Accounting in the College of Business Administration and to the Graduate School and was accepted as partial fulfilment of the requirements for the degree of Doctor of Philosophy.

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Dean, Graduate School